IN THE CLAIMS

Please cancel claims 1-14.

Please add claims 30-36.

Please amend claims 26, 27 and 29 as follows:

1-14. Cancelled

15. (Withdrawn) A process for producing a semiconductor device, comprising:

coating a first side of a carrier with a first diffusion-soldering alloy;

coating a second side of the carrier with a second diffusion-soldering alloy wherein the melting points of diffusion-soldering alloys and diffusion-soldered joints are staggered in such a manner that a first melting point of the first diffusion-soldering alloy is lower than a second melting point of the second diffusion-soldering alloy, and the second melting point being lower than a third melting point of a first diffusion-soldered joint produced from the first diffusion-soldering alloy;

diffusion-soldering a first substrate to the first side of the carrier by heating the first diffusion-soldering alloy to the first melting point; and

diffusion-soldering a second substrate to the second side of the carrier by heating the second diffusion-soldering alloy to the second melting point.

16. (Withdrawn) The process according to claim 15, wherein the first diffusion-soldering alloy is the composition Ga-yNi where 1% by weight $< y <$ 20% by weight or Ga-xCu where 1% by weight $< x <$ 40% by weight or Ga-yAg where 1% by weight $< y <$ 40% by weight is applied to the first side, and the second diffusion-soldering alloy is the composition In-xAg where 1% by weight $< x <$ 30% by weight or Sn-yAg where 1% by weight $< y <$ 50% by weight is applied to the second side.

17. (Withdrawn) The process according to claim 15, wherein the first diffusion-soldering alloy

of the composition Ga-yNi where 1% by weight < y < 20% by weight or Ga-yAg where 1% by weight < y < 40% by weight is applied to the first side, and the second diffusion-soldering alloy of the composition In-xAg where 1% by weight < x < 30% by weight or Sn-yAg where 1% by weight < y < 50% by weight or Au-xSn where 5% by weight < x < 38% by weight, preferably where 10% by weight < x < 30% by weight, is applied to the second side.

18. (Withdrawn) The process according to claim 15, wherein the diffusion-soldering alloy of the composition Ga-yAg where 1% by weight < y < 40% by weight is applied to the first side, and the diffusion-soldering alloy of the composition In-xAg where 1% by weight < x < 30% by weight or Sn-yAg where 1% by weight < y < 50% by weight or Au-xSn where 5% by weight < x < 38% by weight, preferably where 10% by weight < x < 30% by weight or Au-yGe where 4% by weight < y < 50% by weight, remainder Au, preferably where 7% by weight < y < 20% by weight, remainder Au, is applied to the second side.

19. (Withdrawn) The process according to claim 15, wherein the first diffusion-soldering alloy of the composition In-xAg where 1% by weight < x < 30% by weight is applied to the first side, and the second diffusion-soldering alloy of the composition Sn-yAg where 1% by weight < y < 50% by weight or Au-xSn where 5% by weight < x < 38% by weight, preferably where 10% by weight < x < 30% by weight, or Au-yGe where 4% by weight < y < 50% by weight, remainder Au, preferably where 7% by weight < y < 20% by weight, remainder Au, is applied to the second side.

20. (Withdrawn) The process according to claim 15, wherein the first diffusion-soldering alloy of the composition Sn-yAg where 1% by weight < y < 50% by weight is applied to the first side, and the second diffusion-soldering alloy of the composition Au-xSn where 5% by weight < x < 38% by weight, preferably where 10% by weight < x < 30% by weight, or Au-yGe where 4% by weight < y < 50% by weight, remainder Au, preferably where 7% by weight < y < 20% by weight, remainder Au, is applied to the second side .

21. (Withdrawn) The process according to claim 16, wherein the first diffusion-soldering alloy of the composition Au-xSn where 5% by weight < x < 38% by weight, preferably where 10% by weight < x < 30% by weight, is applied to the first side, and the second diffusion-soldering alloy of the composition Au-yGe where 4% by weight < y < 50% by weight, remainder Au, preferably where 7% by weight < y < 20% by weight, remainder Au, is applied to the second side .

22. (Withdrawn) The process according to claim 15, wherein a layer of silver, copper or nickel is applied to each side of at least one of the carrier or of the semiconductor chip prior to the application of the diffusion-soldering alloy.

23. (Withdrawn) The process according to claim 15, wherein a layer of copper or a copper alloy is additionally applied prior to the application of the second diffusion-soldering alloy comprising Au-yGe where 4% by weight < y < 50% by weight, remainder Au, preferably where 7% by weight < y < 20% by weight, remainder Au.

24. (Withdrawn) The process according to claim 15, wherein a layer of copper or silver or an alloy thereof is applied prior to the application of a diffusion-soldering alloy comprising Sn-yAg where 1% by weight < y < 50% by weight or Au-xSn where 5% by weight < x < 38% by weight, preferably where 10% by weight < x < 30% by weight.

25. (Withdrawn) The process according to claim 15, wherein a layer sequence made up of aluminum and titanium is applied prior to the application of a diffusion-soldering alloy to the sides of a semiconductor chip.

26. (Currently Amended) A semiconductor device, comprising:

a semiconductor chip having a rear side and a top side with contact surfaces thereon,

a chip island having the rear side soldered thereto with a first diffusion-soldered joint having a first melting point,

flat conductors soldered to the contact surfaces on the top side of the semiconductor chip with a second diffusion-soldered joint having a second melting point~~, the soldered joints including different diffusion-soldering systems, with the first diffusion-soldering alloy on the rear side and with the second diffusion-soldering alloy on the top side, and the first and second diffusion-soldering alloys having different melting points~~.

27. (Currently Amended) The semiconductor device according to claim 26, wherein a metal layer of copper or silver or nickel is between the diffusion-~~soldering alloy~~ soldered joints and the respective top side and rear side of the semiconductor chip.

28. (Previously Presented) The semiconductor device according to claim 26, wherein a layer sequence made up of aluminum and titanium is present on the sides of the semiconductor chip.

29. (Currently Amended) The semiconductor device according to claim ~~23~~26, wherein ~~a layer sequence made up of aluminum and titanium is present on the sides of the semiconductor chip~~the first diffusion-soldered joint has intermetallic phases including Ag_3Sn and Ag_5Sn, and the second diffusion-soldered joint has intermetallic phases including Cu_3Ge and Cu_5Ge.

30. (New) A semiconductor device, comprising:

a chip island;

a semiconductor chip having a rear side and a top side with contact surfaces thereon;

a first diffusion-soldering alloy having a first melting point situated between the rear side and the chip island;

flat conductors; and

a second diffusion-soldering alloy having a second melting point situated between the top side and the flat conductors.

31. (New) The semiconductor device according to claim 30, further comprising a buffer layer of silver situated between the first diffusion-soldering alloy and the rear side.

32. (New) The semiconductor device according to claim 30, further comprising a buffer layer of silver situated between the second diffusion-soldering alloy and the top side.

33. (New) The semiconductor device according to claim 30, further comprising a layer sequence made up of aluminum and titanium situated between the first diffusion-soldering alloy and the rear side.

34. (New) The semiconductor device according to claim 30, further comprising a layer sequence made up of aluminum and titanium situated between the second diffusion-soldering alloy and the top side.

35. (New) The semiconductor device according to claim 30, wherein the first diffusion-soldering alloy comprises Au-xSn where 10% by weight $< x <$ 30% by weight.

36. (New) The semiconductor device according to claim 30, wherein the second diffusion-soldering alloy comprises Au-yGe where 7% by weight $< y <$ 20% by weight.